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UNITED STATES DISTRICT COURT

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NORTHERN DISTRICT OF CALIFORNIA

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SAN FRANCISCO DIVISION

17 FLUIDIGM CORPORATION, A DELAWARE
18 CORPORATION; AND FLUIDIGM CANADA
19 INC., A FOREIGN CORPORATION,

20 Plaintiffs,

21 v.

22 IONPATH, INC., A DELAWARE
23 CORPORATION,

24 Defendant.

25 Case No. 3:19-cv-05639-WHA

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28
**DEFENDANT IONPATH, INC.'S
OPPOSITION TO PLAINTIFFS'
MOTION FOR SUMMARY JUDGMENT
ON DIRECT INFRINGEMENT AND
VALIDITY OF SHOWDOWN CLAIMS**

Date: January 21, 2021

Time: 8:00 a.m.

Ctrm: 12

Judge: Hon. William Alsup

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REDACTED VERSION OF DOCUMENT PROPOSED TO BE FILED UNDER SEAL**1 MEMORANDUM OF POINTS AND AUTHORITIES**

2 Fluidigm's allegations ignore the patent claims, specification, and the representations it made
3 to the patent office to obtain its patents in the first place, and instead seek to stretch and contort the
4 claims and the disclosure to cover technologies that the named inventors admit they never tried and
5 did not know how to implement as of the 2004 priority date (or even a decade later). Perhaps
6 recognizing this, Fluidigm ducks the issue of claim construction almost entirely in its brief (never even
7 citing IONpath's proposed claim constructions, let alone confronting them), relies on evidence
8 regarding unaccused products and functionality outside of the accused system, and misinterprets,
9 misapplies and even mischaracterizes the testimony and documents on which it relies.

10 It is little surprise then that Fluidigm's motion for summary judgment of literal infringement
11 and no invalidity fails for multiple independent reasons. At the outset, Fluidigm does not meet its
12 initial *Celotex* burdens because it (1) purports to seek judgment of infringement by devices not accused
13 of infringement in this case, (2) fails to make a *prima facie* showing of infringement of the only
14 instrument that is actually accused in this case, and (3) fails to address step 1 of the infringement
15 inquiry, claim construction. Beyond those independent threshold defects, Fluidigm has not established
16 that there is no dispute of material fact that multiple claim limitations are absent from the accused
17 instrument. Likewise, Fluidigm's motion for summary judgment of no invalidity—which purports to
18 address IONpath's robust obviousness, written description, and enablement challenges in a matter of
19 a few pages—fails for the simple reason that it ignores IONpath's expert's opinions and the admissions
20 of its own expert and named inventors that not only create a genuine dispute of material fact but, as to
21 written description and enablement, actually compel the opposite judgment.

22 I. RELEVANT BACKGROUND**23 A. The Asserted Patents and Their Alleged Invention**

24 Left out from Fluidigm's brief is the development and focus of its own patents. In 2004, the
25 named inventors, Drs. Bandura, Baranov, and Tanner, were beginning to experiment with combining
26 the specific technique of flow cytometry with inductively coupled mass spectrometry ("ICP-MS").
27 Throughout 2005 and 2006, the named inventors continued to experiment with various designs—all
28 of which were limited to using ICP-MS to vaporize, atomize, and ionize the individual cells as they

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1 flowed through an instrument, one at a time. The named inventors termed this device an “elemental
 2 flow cytometer,” which “[i]n one broad aspect . . . provides an apparatus for *introducing particles*
 3 *sequentially and analyzing the particles* (for example, single particles such as single cells or single
 4 beads), by spectrometry.” Dkt. 162-3 (’698 patent) at 2:55-60; *see also id.* at 1:35-38. The patents
 5 consistently disclose and describe the overall scheme of sequential analysis of whole, single cells
 6 as they move, cell-by-cell, through the device. *See id.* at 26:58-59; 28:36-38.

7 In 2007, the named inventors decided to develop a different system that included laser
 8 ablation, for which they applied for and received *different* patents. This development would take
 9 the better part of a decade. Ex. 1 (Tanner Depo. (“Tanner”)) at 154:3-155:25.¹ At no point did the
 10 named inventors experiment with, let alone know how to successfully use, SIMS or glow discharge
 11 to practice the claimed inventions.

12 **B. Development of IONpath’s Technology**

13 Drs. Angelo, Bendall, Nolan, and Fienberg—three Stanford professors and a post-doctoral
 14 student—began development of the MIBI technology in 2012. They set out to develop a
 15 groundbreaking new use for SIMS technology that would allow for the multiplexed analysis of
 16 tissue samples with sub-cellular resolution. The initial research and development took two years
 17 and cost Stanford approximately five million dollars. In 2014, Drs. Tanner and Baranov (then with
 18 Fluidigm), met with Drs. Angelo, Bendall, and Nolan to discuss whether Fluidigm wanted to license
 19 the technology; they declined because they did not think it would work. Dkt. 162-25 at 224:3-13.

20 In late 2014, following a successful proof of concept, the IONpath co-founders formed
 21 IONpath and licensed patents on the technology from Stanford. IONpath then began the
 22 development of its alpha instrument (completed in 2016), then its “early access versions,” which
 23 Fluidigm refers generally to as “beta” instruments (completed throughout 2017 and 2018), and then
 24 its commercial MIBIscope (released late 2019).

25 **II. FLUIDIGM HAS NOT SUSTAINED ITS BURDEN ON INFRINGEMENT**

26 **A. Fluidigm’s Direct Infringement Allegations For The Alpha And Beta**

27 ¹ All exhibits are to the Decl. of Joseph Taylor Gooch filed concurrently herewith. Emphasis added,
 28 and internal citations and objections omitted throughout, unless otherwise noted. Citations are to
 the ’698 patent; citations to the ’386 patent are the same unless noted. The ’386 patent has a different
 abstract and cosmetic changes but is otherwise identical.

REDACTED VERSION OF DOCUMENT PROPOSED TO BE FILED UNDER SEAL**1 Products Are Outside Fluidigm's Operative Infringement Contentions**

2 In a footnote, Fluidigm brings the present motion against each of IONpath's "alpha, beta, &
3 commercial" products. *See* Mot. 3, n.1. And yet, Fluidigm's operative Second Amended
4 Infringement Contentions have expressly accused only IONpath's commercial MIBIscope of
5 infringement. *See* Ex. 3 (2nd Am. Infr. Cont.) at 2 ("[REDACTED]
6 [REDACTED]
7 [REDACTED]."); *see EON CorpIP Holding LLC v. Sprint Spectrum, L.P.*, 12-cv-01011-JST-
8 EDL, 2014 WL 1022536, at *4 (N.D. Cal. Mar. 13, 2014) (striking portions of expert report that
9 reference products that were not disclosed in infringement contentions); *Bot M8 LLC v. Sony Corp.*
10 *of Am.*, 465 F. Supp. 3d 1013, 1028 (N.D. Cal. 2020) ("[I]nfringement and invalidity contentions
11 set the metes and bounds of the suit."). Fluidigm has not moved to amend its infringement
12 contentions to add new accused instrumentalities, nor could it plausibly have good cause to do so.
13 As such, Fluidigm's motion for judgment of infringement as to any device other than the
14 commercial MIBIscope must be denied.

**15 B. Fluidigm Fails To Make A *Prima Facie* Showing Of Infringement As To
16 The Commercial MIBIscope**

17 As to the commercial MIBIscope (the only instrument accused of infringement in this case),
18 Fluidigm fails to provide particularized evidence of direct infringement sufficient to carry its burden
19 under *Celotex* or its burden to prove infringement for that matter. "When a patentee with the burden
20 of proof seeks summary judgment of infringement, it must make a *prima facie* showing of
21 infringement as to *each accused device before the burden shifts* to the accused infringer to offer
22 contrary evidence." *L & W, Inc. v. Shertech, Inc.*, 471 F.3d 1311, 1318 (Fed. Cir. 2006). Fluidigm
23 fails to do that here. Instead, it relies on the unsupported statement that "[b]oth parties' . . . experts
24 agree that there are no differences material to the question of infringement." Mot. 3, n.1. Not so. In
25 fact, Fluidigm's own expert testified that he did zero investigation relating to the differences
26 between these versions:

27 [Q]. [D]id you do anything to investigate whether there were changes that would be
28 material to your opinions in this matter between different versions or generations of the
IONpath technology?

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1 A. No, I didn't.

2 Ex. 4 (Hieftje Depo. ("Hieftje")) at 63:4-11; *see also id.* at 61:14-62:2 (testifying that he (1) doesn't
 3 know the similarities or differences between versions, (2) would have only focused on "major
 4 change[s]," and (3) did not do anything to investigate if there were major changes); *id.* at 441:25-
 5 442:16 (admitting that he did not know which publications mapped to which IONpath products).²

6 Fluidigm's attempt to side-step its expert's failure to analyze infringement by the accused
 7 instrument by citing the testimony of IONpath's expert Dr. Winograd must be rejected. Contrary to
 8 Fluidigm's contention, Dr. Winograd did not testify that there were no material differences between
 9 the alpha, beta, and commercial products. Instead, Dr. Winograd testified that his report did not
 10 *identify* any differences between MIBI versions, because his report focused *only* on the commercial
 11 version of the MIBIscope as the accused product. *Compare* Ex. 5 (Winograd Depo. ("Winograd"))
 12 at 46:14-21 ("[Q.] I'm trying to understand, is there any difference in your analysis for
 13 noninfringement purposes between the different versions of the MIBIscope? A. I think the only
 14 thing I can say is footnote 8 on page 40.") *with* Ex. 6 (Winograd NI Rpt.) at n.8 ("Unless I
 15 specifically note otherwise, wherever I discuss the 'MIBIscope,' I refer to the commercially
 16 launched model."). In fact, Fluidigm's counsel defined "MIBIscope" as the "commercially launched
 17 version of the MIBIscope" during the deposition. Ex. 5 (Winograd) at 46:23-47:5.

18 Given that its own expert relied heavily on evidence relating to unaccused instruments and
 19 did not do any investigation into the differences between the instruments, it is of little surprise that
 20 Fluidigm has not come forward with evidence tying the accused commercial MIBIscope to the
 21 claims of the patent even under its own (wrong) infringement theories. To wit, Fluidigm's motion
 22 repeatedly and consistently relies on evidence about unaccused instruments rather than offer
 23 evidence that support its infringement allegations with respect to the actual accused commercial
 24 MIBIscope under *Celotex*:

Exhibit #	IONpath product described	Pages cited in Fluidigm's brief
Ex. K (Laboratory Investigation Paper)	Alpha product Ex. 7 (Ptacek) at 67:6-10	4, 5, 8, 9, 12, 14, 15, 16, 17, 18, 19
Ex. M (Poster)	Alpha product (Bendall Decl., ¶ 2)	5, 8, 9, 16, 18, 20

28 ² IONpath has moved to preclude and/or strike Dr. Hieftje's testimony based on Fluidigm's violation
 29 of ADR Rule 7-4.

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1	Ex. N (Webinars)	Stanford product (Bendall Decl., ¶ 3)	6, 11, 20
2	Ex. U (IONpath document)	Alpha product (Bendall Decl., ¶ 4)	18

3 This is illustrated perhaps most starkly in Fluidigm’s argument that the MIBIscope satisfies the
4 claim limitations “detecting, using mass spectrometry, the elemental composition of the first
5 cell/second cell by detecting a transient signal . . . of the first cell/second cell” (’386 patent) and “a
6 second device to detect, by mass spectrometry . . . of the first cell/second cell by detecting a transient
7 signal . . . of the first cell/second cell” (’698 patent).³ Mot. 15-16. There, Fluidigm relies on four
8 pieces of evidence. *Id.* None are even relevant to their burden under *Celotex*. **First**, the LI paper
9 (Dkt. 162-12) is not evidence of infringement as to the accused instrument because it discusses only
10 the alpha instrument. Ex. 7 (Ptacek) at 67:6-10. **Second**, the Poster Presentation (Dkt. 162-14) is
11 also about the alpha instrument and not the commercial MIBIscope. Bendall Decl., ¶ 2. **Third**,
12 Fluidigm relies on Dr. Hiefte’s report, but the cited paragraph makes clear that he was analyzing
13 the wrong instrument because his only citation is to the LI paper. Dkt. 161-10, ¶ 124. **Fourth**, having
14 failed to identify any evidence that the accused product satisfies the claim limitations, Fluidigm
15 relies on testimony from Dr. Winograd. But the testimony is not evidence of infringement under
16 *Celotex*—it confirms the opposite. Dr. Winograd testified in the very quote that Fluidigm cites, “[I]t
17 doesn’t say anything about whether it’s in a cell or not. Could be in a place where there is no cell.”
18 Dkt. 161-5 at 116:22-117:18; *see also* Ex. 6 (Winograd NI Rpt.), ¶¶ 125-45.

19 Ultimately, because Fluidigm has failed to distinguish between accused and unaccused
20 instruments, Fluidigm has failed to provide the particularized evidence required to carry its burden.

21 **C. Fluidigm’s Motion Fails for the Independent Reason That It Does Not
22 Address Step 1 Of The Infringement Inquiry--Claim Construction**

23 “Before deciding whether an accused device infringes asserted claims, a court must first
24 construe the claim language to determine the meaning and scope of the claims.” *Rambus Inc. v.*
25 *Infineon Technologies Ag*, 318 F.3d 1081, 1087 (Fed. Cir. 2003). Accordingly, “[t]he test for patent
26 infringement requires both proper interpretation of the claim scope and proper comparison of the
27 claims with the accused device.” *Abtox, Inc. v. Exitron Corp.*, 122 F.3d 1019, 1023 (Fed. Cir. 1997),

28 ³ These limitations are referred to as the “detecting . . . the [first/second] cell” limitations.

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1 *opinion amended on reh’g*, 131 F.3d 1009 (Fed. Cir. 1997). And yet, Fluidigm asks this Court to
2 enter judgment of infringement without even acknowledging IONpath’s constructions, let alone
3 addressing the substantial evidence IONpath has offered in support of its proposed constructions.

4 To wit, with the exception of a single set of disputed limitations (those relating to vaporizing,
5 atomizing, ionizing), Fluidigm fails to meaningfully engage with any of the claim construction
6 disputes before the court. For example, the parties dispute whether or not the ’698 claim is subject
7 to Section 112 ¶ 6 as a means plus function claim. But in the respective portion of Fluidigm’s
8 motion, Fluidigm does not address whether or not this claim is a means plus function claim or the
9 proper construction of its corresponding structure, let alone how the commercial MIBIscope
10 satisfies the limitation. As another example, the parties hotly contest construction of the claim
11 limitations “detecting . . . the [first/second] cell,” but Fluidigm’s entire discussion of claim
12 construction for these terms is a single conclusory paragraph. *See* Mot. 13-14. This “analysis” does
13 not address why Fluidigm construction is right or why IONpath’s is not.

14 Because Fluidigm has failed to even engage with step one of the infringement analysis, the
15 Court is unable as a matter of law to compare the proper claim scope to the accused device and
16 summary judgment should be denied on that basis alone.

17 **III. FLUIDIGM HAS FAILED TO ESTABLISH INFRINGEMENT OF CLAIM 9 OF
18 THE ’698 PATENT, A MEANS-PLUS-FUNCTION CLAIM**

19 The parties dispute whether or not claim 9 of the ’698 patent is a means plus function claim.
20 Fluidigm does not address this dispute in its papers. Nor does Fluidigm put forth any infringement
21 analysis under *either* parties’ proposed corresponding structures.

22 **A. Claim 9 of the ’698 Patent Is A Means-Plus-Function Claim**

23 Where a claim recites “a function to be performed rather than by reciting structure for
24 performing that function,” the scope of coverage is limited to only the “structure, materials, or acts
25 described in the specification.” *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347-49 (Fed.
26 Cir. 2015). The essential inquiry is “whether the words of the claim are understood by persons of
27 ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Id.* at
28 1348. Here, the “first device” and “second device” limitations recite only the nonse word “**device**.”

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1 See *Mass. Inst. of Tech. & Elecs. For Imaging, Inc. v. Abacus Software*, 462 F.3d 1344, 1354 (Fed.
2 Cir. 2006) (“generic terms” such as “**device**,” typically do not connote sufficiently definite
3 structure.”). For the “first device,” the claim identifies the function (“**to** vaporize, atomize, and
4 ionize”) and the target (“multiple elemental tags from a single first cell of the plurality of tagged
5 cells.”), but no structure. And the same is true for the “second device,” where the claim identifies
6 the function (“to detect, by mass spectrometry”) and the target (“lanthanides and/or noble metals of
7 the single first[/second] cell by detecting a transient signal . . . wherein the transient signal associated
8 with the single first cell and the transient signal associated with the single second cell are detected
9 sequentially”), but no structure. This is no surprise. When Fluidigm revised the original claims from
10 “a **means** to vaporize....” to “a **first device** to vaporize...,” or “a **means** to detect” to “a **second device**
11 to detect” it did not add structure.

1. The Corresponding Structure Of The “First Device”

13 The parties agree that the specification starts by listing four structures: glow discharge,
14 graphite furnace, and capacitively coupled plasma devices, and inductively coupled plasma (ICP)
15 device. Dkt. 162-3 at 6:59-7:2; *see also id.* at 13:1-20. Beyond these structures, the parties disagree.

16 *First*, Fluidigm argues that the corresponding structure should be expanded to include “other
17 suitable devices, and equivalents thereof,” including a long laundry-list of structures that appear
18 nowhere in the patent. This is not a proper construction. At the outset, the identification of
19 equivalents is a question of fact for an infringement analysis—not one for claim construction. See
20 *Pressure Prods. Med. Supplies, Inc. v. Greatbatch Ltd.*, 599 F.3d 1308, 1317 (Fed. Cir. 2010).

21 **Second**, Fluidigm’s proposed corresponding structure stops short of actually corresponding
22 to the claimed function. A “disclosure **must** be of ‘adequate’ corresponding structure to **achieve** the
23 claimed function.” *Williamson*, 792 F.3d at 1352. Here, the enumerated “means to vaporize, atomize
24 and ionize” provide corresponding structure for vaporizing, atomizing, and ionizing, but do not
25 provide corresponding structure adequate to perform the function of vaporizing, atomizing, and
26 ionizing “multiple elemental tags from a single first cell of the plurality of tagged cells” and a
27 “second cell.” The specification clearly links the “**Means for Introducing Particles Sequentially**”:

28 The sample introduction system 102 can comprise several devices that are currently in

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1 use with other flow cytometry sample introduction systems. For example, there
2 currently exist several ***cell or particle injector 171 systems in use for flow cytometry,***
including various formats of sheath flow injection.

3 Dkt. 162-3 at 11:50-56; *see also id.* Figs. 1-4, 7:46-54. This structure is required because it is the
4 structure that permits the vaporization, atomization, and ionization of tags “from a single first cell”
5 and “from a single second cell” so they can be detected sequentially as claimed. Indeed, Fluidigm’s
6 expert admits that the patent does not disclose a system that uses the four enumerated structures for
7 vaporization, atomization, and ionization of tags from single cells ***without*** a sample introduction system.

8 **2. The Corresponding Structure Of The “Second Device”**

9 Should the Court find that this element is a means-plus-function limitation, the parties agree
10 on the claimed function. The parties also agree that the patent expressly discloses as corresponding
11 structure those terms included in IONpath’s proposed construction, which come (as corresponding
12 structure must) straight from the specification:

13 The mass spectrometer can be any mass spectrometer. For example, it can be a
14 quadrupole, magnetic sector with array detector, 3D Ion Trap or Linear Ion Trap mass
15 spectrometer. Preferably it is a time of flight mass spectrometer (TOF MS). TOF MS
16 is a simultaneous analyzer. It is able to register all masses of interest in one particle
17 simultaneously.

18 Dkt. 162-3 at 7:15-20. These enumerated and linked structures “and equivalents thereof” are
19 claimed under Section 112 ¶ 6. Nothing more. Yet Fluidigm creates an additional, broader category
20 of all “simultaneous or sequential mass analyzers,” and reframes the enumerated structures ***as***
examples. The specification never mentions “simultaneous or sequential mass analyzers,” and
21 neither Fluidigm nor its claim construction expert Dr. Kelly identify any disclosure linking
22 “simultaneous or sequential mass analyzers” to the claimed function. Fluidigm’s attempt to broaden
23 the claims beyond the recited structures violates the “quid pro quo” provided to the applicant under
24 Section 112 ¶ 6. *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997).

25 **B. There is No Evidence of Infringement of The Means-Plus-Function Claim**

26 If the Court determines that either the “first device” or the “second device” are means-plus-
27 function limitations (as it should), Fluidigm has presented zero evidence or argument as to why
28 IONpath’s MIBIscope infringes under ***either*** parties’ proposed structure. *See* Mot. 8-13, 13-17. As
such, Fluidigm’s motion for judgment of infringement of the ’698 patent must be denied.

REDACTED VERSION OF DOCUMENT PROPOSED TO BE FILED UNDER SEAL**IV. FOR MULTIPLE REASONS, FLUIDIGM HAS NOT ESTABLISHED THAT THE MIBISCOPE INFRINGES EITHER SHOWDOWN CLAIM**

“An infringement issue is properly decided upon summary judgment when no reasonable jury could find that every limitation recited in the properly construed claim either is or is not found in the accused device either literally or under the doctrine of equivalents.” *Gart v. Logitech, Inc.*, 254 F.3d 1334, 1339 (Fed. Cir. 2001). Although there are multiple limitations for which Fluidigm has not met its burden (in addition to those threshold defects described above), IONpath addresses only four such limitations here. Each independently requires denial of Fluidigm’s motion.

A. Fluidigm Has Failed to Sustain Its Burden of Establishing that the MIBIScope Meets The “Detecting . . . The [First/Second] Cell” Limitations

Fluidigm has not met its burden to establish that the accused instrument satisfies the “detecting . . . the [first/second] cell” limitations. If the Court adopts IONpath’s proposed claim construction, Fluidigm has not even attempted to argue, let alone establish infringement; but even if the Court were to adopt Fluidigm’s proposed construction, Fluidigm has not produced competent evidence demonstrating there is no dispute of a material fact as to application of that construction.

1. IONpath’s Proposed Construction is Correct

Claim Limitation	Fluidigm Construction	IONpath Construction
“detect . . . lanthanides and/or noble metals of the single first cell . . . and lanthanides and/or noble metals of the single second cell . . .” ('698 claim 1) ⁴	“detect”: plain and ordinary meaning	individually discerning on a cell-by-cell basis . . . the lanthanides and/or noble metals that make up the first cell . . . individually discerning on a cell-by-cell basis . . . the lanthanides and/or noble metals that make up the second cell
“detecting . . . the elemental composition of the [first/second] cell” ('386 claim 1)	analyzing elements or isotopes of the elemental tags bound to analyte in or on the [first/second] cell, by mass spectrometry	individually discerning on a cell-by-cell basis . . . the elements that make up the [first/second] cell

The key issue here is whether the “detecting . . . the [first/second] cell” limitations should be read in the context of the claim’s requirement that what is being detected is “the [single] first

⁴ The parties also dispute the construction of the claim limitation, “detecting . . . wherein the transient signal associated with the first cell and the transient signal associated with the second cell are detected sequentially ('386 claim 1) and detecting . . . wherein the transient signal associated with the single first cell and the transient signal associated with the single second cell are detected sequentially ('698 patent claim 1). The Commercial MIBIScope also does not satisfy these limitations, but for space requirements does not address the issue here.

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1 cell” and “the [single] second cell” (IONpath’s proposal) or whether they should be plucked out and
2 given some unspecified “plain and ordinary” meaning divorced from the context of the claim and
3 specification (Fluidigm’s proposal).

4 **a) The Record Compels IONpath’s Proposed Construction**

5 Central to the claims is a fundamental requirement that the system or method detect the
6 elements that make up each cell (’386 patent) or the lanthanides and/or noble metals that make up
7 each cell (’698 patent). This is clear from the structure of the claims. Claim 1 of the ’386 patent
8 requires: (1) “vaporizing, atomizing, and ionizing . . . tags from a *single* first cell,” (2) then
9 “detecting . . . *the elemental composition of the first cell*,” (3) then “vaporizing, atomizing, and
10 ionizing . . . tags from a *single* second cell,” (4) then “detecting . . . *the elemental composition of*
11 *the second cell*.” Each of the “detecting” steps applies to the single cell at issue—i.e., the single first
12 cell or the single second cell. And for each, the claim recites “detecting . . . *the* elemental
13 composition of *the* [first/second] cell,” i.e., the elemental composition of the entire “single first cell”
14 (which is the antecedent basis for “the first cell”), be detected in the first detecting step and the
15 elemental composition of the entire single second cell (which is the antecedent basis for “the second
16 cell”) be detected in the second detecting step. Consistent with this, the ’698 claims require devices
17 to also (1) “vaporize, atomize, and ionize . . . tags from a single first cell,” (2) and “tags from a
18 single second cell,” and then (3) “detect . . . lanthanides and/or noble metals *of the single first cell*”
19 and “*of the single second cell*” by “detecting a transient signal of the multiple vaporized, atomized,
20 and ionized elemental *tags of the single first cell*” and “detecting a transient signal of the multiple
21 vaporized, atomized, and ionized elemental *tags of the single second cell*.”

22 The specification reinforces that the claims require discerning on a cell-by-cell basis the
23 elemental composition of each cell (’386 patent) or the lanthanides and/or noble metals that make
24 up each cell (’698 patent). For instance, the very first sentence of the “Summary of the Invention,”
25 makes clear: “In one broad aspect, *the present invention* provides an apparatus for introducing
26 particles *sequentially and analyzing the particles* (for example, *single particles such as single cells*
27 or single beads), by spectrometry.” Dkt. 162-3 at 2:55-60. It goes on to explain that they are
28 introduced “*cell-by-cell* or bead-by-bead” and “preferably adapted for discrete event analysis.” *Id.*

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1 at 6:22-24; *see also id.* at 24:63-67; 3:44-46. In fact, none of the twelve examples in the patent
2 suggest that the detection is on any basis other than cell-by-cell. To the contrary, every recitation of
3 detecting or analyzing a “single cell” or “cell-by-cell” supports the IONpath’s proposed claim
4 constructions.

5 Although the claim language and specification themselves would compel IONpath’s
6 proposed construction, the construction also finds verbatim support in the file history. During the
7 prosecution of the ’386 patent, the application was rejected as being anticipated by Baranov441.
8 Baranov441, which is admitted as prior art in the patents-in-suit (’698 patent at 2:48–53) and shares
9 several named inventors, describes two methods of sample introduction, one of which is the “flow
10 of particles (laser ablation of solid surfaces).” In fact, the patent examiner specifically pointed to
11 the paragraph containing laser ablation in Baranov441 when rejecting the patent application.

12 Faced with this rejection, Fluidigm amended the patent’s independent claim to add the “first”
13 and “second” cell limitations. As part of this, Fluidigm argued that Baranov441 was distinguishable
14 because methods that analyze tissue samples by laser ablation were not captured by the claim
15 because they “relate to detecting a sample in bulk without *individually discerning elemental*
16 *composition on a cell-by-cell basis.*” Fluidigm made the same arguments about the scope of its
17 claims in prosecuting the ’698 patent, which was rejected based on the same paragraphs of
18 Baranov441, and analogous amendments.

19 **b) Fluidigm’s Proposed Constructions Should Be Rejected**

20 For the ’698 patent, Fluidigm proposes that the term “detect” have only its plain and ordinary
21 meaning and that the rest of the limitation be left unconstrued. The result is a “plain meaning” of
22 the claims that is divorced from any rationale, let alone, ordinary meaning. To wit, Fluidigm’s
23 experts’ reading of the claims is so broad that it would find a system or method that detects
24 lanthanides and/or noble metals *of the single first cell* and lanthanides and/or noble metals *of the*
25 *single second cell* even in the scenario where a system detects one particle of cell 1, detects one or
26 more particles of cells 2, 3, etc., and then detects another particle of cell 1 (or any other cell) at any
27 later time. Fluidigm’s effort to use “plain meaning” to stretch the claims so broadly must be rejected.

28 So too must Fluidigm’s construction for “detecting . . . the elemental composition of the

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1 [first/second] cell" in the '386 patent. Fluidigm rewords the claims—replacing "detecting" with
2 "analyzing" (a term that is used elsewhere in the claim) and describing "elements or isotopes of the
3 elemental tags bound to analyte in or on the [first/second] cell, by mass spectrometry"—without
4 actually engaging with the underlying question of claim scope: do the claims require detecting the
5 composition ***of each single cell, cell-by-cell*** and not just a particle or subpart of any two cells at any
6 different points in time?

7 **2. Fluidigm Presents No Evidence that MIBIscope "*Detect[s] . . . The*
8 ***[First/Second] Cell*** *Under IONpath's Proposed Construction***

9 Fluidigm's motion does not provide any evidence or argument that IONpath's MIBIscope
10 satisfies this limitation under IONpath's proposed construction. This is unsurprising given that
11 Fluidigm's expert has put forth no viable literal infringement theory and instead only a single
12 unsupported sentence that raises only the theoretical possibility of infringement. Dkt. 161-10, ¶ 124.
13 Conversely, IONpath's expert has opined that the MIBIscope does not meet these limitations
14 because (1) the MIBIscope's ion beam rasters and ablates pixel-by-pixel across the surface of a
15 tissue sample without any regard to cell boundaries or if there are even cells at all (Ex. 6 (Winograd
16 NI Rpt.), ¶¶ 127-28, 143) and (2) the ion beam can't detect the elements or lanthanides and/or noble
17 metals that make up a cell because it scans tissue slices (which are much thinner than a typical cell)
18 and, even there, only scans to a depth of 100 nm (which is 50 to 500 times thinner than the average
19 mammalian cell) (*Id.*, ¶¶ 127-28, 143). As such, if the Court adopts IONpath's constructions, it must
20 deny Fluidigm's motion.

21 **3. Fluidigm Presents No Competent Evidence that MIBIscope "*Detect[s] . . .*
22 ***The [First/Second] Cell*** *Under Fluidigm's Proposed Construction***

23 As discussed above in Section II.A, Fluidigm is unable to prove that there are no genuine
24 disputes of material fact under its claim construction as it fails to point the Court to any competent
25 evidence so demonstrating. *See* Mot. 15, 16.

26 Fluidigm also identifies various IONpath documents that use the term "single-cell" to
27 superficially suggest that there is no dispute that IONpath's instrument practices the claim. Mot. 15-
28 16 (the MIBIscope "enable[es] cell segmentation and single-cell analysis"); *See also id.* at 2, 5, 6,

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10, 11, 18, 20. But Fluidigm's reliance on *optional* cell segmentation analysis ("post-processing") to support its infringement theory only highlights the fundamental problem with its case. As Fluidigm must concede, the MIBIscope does not itself analyze cells or cell boundaries—it is completely agnostic to whether the pixels that it detects are from one cell or another cell or from cells at all. *Id.* Instead, cell segmentation or image analysis may (or may not) be performed on the data that the instrument generates. Fluidigm's infringement expert admits that he does not know if the cell segmentation or image analysis software is part of the MIBIscope or is provided by IONpath at all. Ex. 4 (Hieftje) at 68:21-69:24. Moreover, even if Fluidigm could rely on cell segmentation that can be performed, if at all, independent of the accused instrument, that software does not support an infringement finding because it only estimates the location of cells and thus does not provide evidence that the MIBIscope meets the limitations' requirement of a first/second cell. Ex. 7 (Ptacek) at 248:11-16 ("[Q.] [a]nd when you say individual cell instances, are you referring to the single cell?" "A. I'm referring to the cell boundaries that were estimated from our cell segmentation"). For all of these reasons, Fluidigm's motion for summary judgment of literal infringement must be denied.

B. Fluidigm has Failed to Demonstrate That The MIBIscope Satisfies the "Sequentially Analyzing / Detecting" Limitations

Fluidigm's motion should be denied for the additional independent reason that Fluidigm has not made a *prima facie* showing that the accused instrument satisfies the "sequentially analyzing / detecting" limitations of the showdown claims.

1. IONpath's Proposed Construction is Correct

Claim Limitation	Fluidigm Construction	IONpath Construction
"sequentially analyzing single cells in a sample" ('698 cl. 1) / "sequentially analyzing single cells" ('386 cl. 1)	analyzing single cells in a sample separately, not at the same time	individually discerning elemental composition on a cell-by-cell basis
"detected sequentially" ('386 cl. 1; '698 cl. 1) ⁵	observed at separate times	<i>see above</i>

IONpath's construction flows directly from the claim language requiring that single cells be analyzed or detected "sequentially."⁶ IONpath's construction maintains this understanding by

⁵ These limitations are referred to as the "sequentially analyzing / detecting" limitations.

⁶ The "detected sequentially" limitations appear in the bodies of the claims. The "sequentially analyzing . . ." limitations appear in the claims' preambles. There should be no real debate that the

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1 requiring a sequential, “cell-by-cell” identification of the elemental composition of the cell. This
 2 construction is compelled by the plain language of the claims, which were written to require
 3 analyzing or detecting a *sequence* of single cells, and not just the analysis of any part of any two
 4 cells at any two points in time. It is also confirmed by the specification and the prosecution history
 5 discussed above. *See* Section IV.A.1.a above.

6 In contrast, Fluidigm’s proposed construction would contort the claim far beyond any
 7 reasonable reading of the claim language, specification, and file history. According to its own
 8 experts, Fluidigm’s proposed construction is broad enough to cover a situation in which any part of
 9 one cell is analyzed at a different time than any part of another cell, even *months or years apart*. It
 10 cannot be that the patents cover the analysis of any two single cells sequentially with no temporal
 11 limits. In fact, Fluidigm’s construction would so expand the patents that its expert, Dr. Hieftje,
 12 admits that they would cover laser ablation, the exact scope that Fluidigm disclaimed to the USPTO.

13 **2. Fluidigm Presents No Evidence of the MIBIscope “Sequentially
 14 Analyzing / Detecting” Under IONpath’s Proposed Construction**

15 Fluidigm’s brief, again does not provide any evidence or argument that IONpath’s
 16 MIBIscope satisfies this limitation under IONpath’s proposed construction. Mot. 17-20 (failing to
 17 present an infringement theory under IONpath’s proposed constructions, or even disclose IONpath’s
 18 claim construction). Nor does Dr. Hieftje provide anything but a conclusory sentence regarding the
 19 issue in his expert report. Ex. 8 (Am. Hieftje Rpt.), ¶ 68.

20 **3. Fluidigm Presents No Competent Evidence of MIBIscope “Sequentially
 21 Analyzing / Detecting” Under Fluidigm’s Proposed Construction**

22 Even under its own proposed construction, Fluidigm falls short of meeting its *Celotex* burden
 23 for the same reasons discussed above. *See Section II.B infra.*⁷ Moreover, Fluidigm’s argument that

24

preambles are limiting here. The limitations are “patentably significant” and do not “merely extol[]
 25 benefits or features of the claimed invention” *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*,
 26 289 F.3d 801, 809 (Fed. Cir. 2002). Moreover, because individual terms in the preamble appear in
 27 other non-preamble elements, they should be construed consistently throughout the claims.
Microprocessor Enhancement Corp. v. Texas Instruments Inc., 520 F.3d 1367, 1375 (Fed. Cir.
 2008). Perhaps recognizing this, Fluidigm has proposed a construction.

28 ⁷ Fluidigm again mischaracterizes Dr. Winograd’s testimony. Dr. Winograd was asked whether the
 accused instrument scans pixels sequentially. Dkt. 161-5 at 86:14-20. (“Q. During the raster
 scanning process, does the MIBIscope scan at a series of different pixels? A. Looking at paragraph

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1 IONpath's use of "single cell data . . . to map and generate images of the detected and analyzed
 2 sequential cell data" at most leads to a fact dispute as to the *application* of Fluidigm's proposed
 3 construction to the operation of the commercial MIBIscope.⁸ Mot. 18. As Dr. Winograd's report
 4 makes clear, the MIBIscope does not satisfy this limitation because the MIBIscope does not
 5 "analyz[] single cells in a sample separately" or "observed at separate times" as required by
 6 Fluidigm's claim constructions as it instead rasters across individual pixels that are not linked to
 7 cells. Ex. 6 (Winograd NI Rpt.), ¶¶ 129-34. Moreover, Fluidigm's expert cannot provide competent
 8 testimony on this front as he admits that he is only "a little bit familiar with some of those things
 9 but *not with the particular algorithms* that are used in the MIBIscope." Ex. 4 (Hieftje) at 69:1-16.
 10 For all of these reasons, Fluidigm has not demonstrated that there is no genuine issue of material
 11 fact even under its proposed claim construction.

12 **C. Fluidigm has Failed to Show the MIBIscope Satisfies The "Vaporizing,
 13 Atomizing, and Ionizing" Limitations**

14 Fluidigm has not met its burden under *Celotex* to show that the accused instrument practices
 15 the "vaporizing, atomizing, and ionizing" limitations.

16 **1. IONpath's Proposed Construction is Correct**

17 Limitations for Construction⁹	18 Fluidigm's Proposed 19 Construction	20 IONpath's Proposed 21 Construction
22 23 "vaporizing, atomizing, and ionizing 24 multiple elemental tags" ('386 claim 1) 25 "vaporize, atomize, and ionize multiple elemental tags" ('698 claim 1)	26 generating ionized atomic 27 components of multiple elemental tags from a solid or liquid state of a sample	28 to convert the elemental tags to a gas by heating, separate the resulting gas into atomic constituents, and positively or negatively charge those atomic constituents

29
 30 112 I think the answer to your question is yes, the – the primary – the primary ion beam samples
 31 the first upper left-hand corner pixel then goes to the next one and samples that one and sequentially
 32 across, like your ear of corn. Q. So the MIBIscope scans each of the pixels sequentially."). Fluidigm
 33 fails to mention that Dr. Winograd testified that rastering pixels is *not* sequential analysis of cells.
 34 See Ex. 5 (Winograd) at 119:10-120:3 ("I agree that the pixels are acquired sequentially but that *the
 35 information about the cells is not sequential*").

36 ⁸ To the extent any optional post-image analysis is performed, it is only relevant to whether IONpath
 37 satisfies the '386 patent method claim and not the '698 patent system claim. This is because to the
 38 extent that this analysis is performed at all by a user, it is performed *external* to the MIBIscope by
 image analysis software that is not part of the instrument or accused of infringement. Ex. 6
 (Winograd NI Rpt.), ¶ 130; Ex. 3 (2nd Am. Infr. Cont.) at 2.

39 ⁹ These limitations will be referred to as the "Vaporizing, Atomizing, and Ionizing" Limitations.

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1 2	“vaporizing, atomizing, and ionizing” ('386 claim 1/'698 claim 1)	generating ionized atomic components from a solid or liquid state of a sample	<i>see above</i>
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3 The parties have three independent disputes related to this term: (1) whether the claim
4 language “vaporizing, atomizing, and ionizing” requires each of vaporization, atomization, and
5 ionization (IONpath) or whether any process that starts with a solid or liquid sample and results in
6 ions falls within the scope of the claims (Fluidigm); (2) whether the steps of vaporization,
7 atomization, and ionization must be performed in order; and (3) whether vaporization requires
8 heating (IONpath) or includes any conversion from a solid or liquid state (Fluidigm). Each of these
9 disputes provides an independent basis for denying Fluidigm’s motion.

10 **a) Claims Require Each of “Vaporizing, Atomizing, and Ionizing”**

11 “Claim construction must begin with the words of the claims themselves.” *See Amgen Inc.*
12 *v. Hoechst Marion Roussel, Inc.*, 457 F.3d 1293, 1301 (Fed. Cir. 2006). Here, the words of the
13 claims themselves require each of (1) vaporizing, (2) atomizing, and (3) ionizing of the multiple
14 elemental tags, and the equivalent usage in the '698 patent.

15 Consistent with the plain language of the claims, “vaporize, atomize, and ionize” is used
16 repeatedly throughout the specification to refer to discrete steps. In describing the “preferred
17 embodiment,” the specification explains that “the sample is promptly vaporized, atomized and
18 ionized as it flows through the plasma.” Dkt. 162-2 at 13:30-32. This use of the description “*as it*
19 *flows through*” confirms the plain reading that the three claimed stages occur sequentially and
20 separately. In yet another embodiment, the specification explains that “vaporization, atomization
21 and ionization and/or excitation can occur *in different devices and at different times*,” giving the
22 example of using a “graphite furnace for vaporization in combination with ICP for atomization and
23 ionization and/or excitation.” *Id.* at 13:7-11. The specification acknowledges that these are separate
24 steps while recognizing the possibility of hypothetical (unclaimed) embodiments in which there is
25 vaporization and atomization, but not ionization; there is vaporization and ionization, but not
26 atomization; there is ionization and atomization, but not vaporization; and vaporization can be of
27 the “entire particle” but ionization and atomization may only be “partial.” *Id.* at 3:4-15
28 (“vaporization followed by ionization directly”); 12:24-30 (“It is desirable that the entire particle

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1 introduced to the ICP be vaporized, and at least partially atomized and ionized"); 19:14-20
 2 ("vaporized, atomized and (optionally, but usually naturally under optimum conditions) ionized").¹⁰
 3 In fact, other than Fluidigm's misreading of the specification's reference to glow discharge devices
 4 (addressed below), Fluidigm has not identified any support that all three processes (vaporization,
 5 atomization, and ionization) can occur at the same time.

6 Despite the clear language of the claim and consistent disclosure in the specification,
 7 Fluidigm's proposed construction skips straight to the result of the process, ignoring the steps clearly
 8 and expressly claimed by the patentee. Specifically, Fluidigm omits the "vaporize" requirement
 9 entirely, and instead rewrites the claims to require merely "[g]enerating ionized atomic
 10 components." In so doing, Fluidigm's construction improperly expands the scope of the claim to
 11 cover **any** method of generating ions from a solid or a liquid. It is simply incorrect that all paths
 12 from solid to ion include vaporization. Ex. 9 (Winograd CC Decl.), ¶¶ 147-52. But more to the point,
 13 if that is what the applicants had intended to claim, they would have claimed it. Fluidigm should not
 14 be permitted to redline the claim now. *See In re Power Integrations, Inc.*, 884 F.3d 1370, 1376 (Fed.
 15 Cir. 2018) (rejecting construction that "renders claim language meaningless").

16 **b) The Claims Require "Vaporizing, Atomizing and Ionizing" In Order**

17 Claims are construed to require order when "the steps of a method claim actually recite an
 18 order" and when order is required such as "if the language of a claimed step refers to the completed
 19 results of the prior step." *Kaneka Corp. v. Xiamen Kingdomway Grp. Co.*, 790 F.3d 1298, 1306
 20 (Fed. Cir. 2015). While claims that do not "explicitly recite or implicitly require" ordering should
 21 not be construed as such, *Koninklijke Philips N.V. v. Zoll Med. Corp.*, 656 F. App'x 504, 514 (Fed.
 22 Cir. 2016), ordering is required where "the sequential nature of the claim steps is apparent from the
 23 plain meaning of the claim language and nothing in the written description suggests otherwise."
 24 *Mantech Envtl. Corp. v. Hudson Envtl. Servs., Inc.*, 152 F.3d 1368, 1376 (Fed. Cir. 1998).

25
 26 ¹⁰ Fluidigm relies on one of these unclaimed embodiments in attempting to argue "atomization may
 27 not be necessary, so that the term may or may not encompass vaporization followed by ionization
 28 directly." However, this quote refers to optical emission spectrometry not mass spectrometry.
 Dkt. 162-2 at 3:11-15 ("Thus, for example, 'vaporize, atomize and ionize' should be understood to
 mean vaporize, atomize and ionize (for mass spectrometry) or excite (either or both atoms and ions)
 for OES."). If anything, this disclosure confirms that the patentee deliberately chose each of the
 words vaporize, atomize, and ionize when drafting its claim limitations.

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1 A PHOSITA reading the claim would have understood that “vaporization, atomization, and
 2 ionization” requires those steps to be carried out in that sequence. Ex. 9 (Winograd CC Decl.),
 3 ¶¶ 154-65. This particular phrasing is commonly used in systems, such as those described in the
 4 patent, where an injected sample is “vaporized” then “atomized” and finally “ionized” as it moves
 5 through the system. *Id.* As explained above, the specification explains that, in the ICP system of the
 6 preferred embodiment and *all* twelve examples, “the sample is promptly vaporized, atomized and
 7 ionized as it flows through the plasma.” (Dkt. 162-2 at 13:31–32); *see also id.* at Abstract (“Particles
 8 or element tags associated with particles can be **vaporized, atomized, and ionized . . .**”); 4:5-6 (“a
 9 device to vaporize, atomize and ionize the particles”).¹¹

10 Despite this, Fluidigm’s proposed claim construction would permit all steps to occur
 11 simultaneously. There are multiple problems with this. *First*, none of the disclosed embodiments or
 12 examples contemplates simultaneous “vaporization, atomization and ionization.” Ex. 9 (Winograd
 13 CC Decl.), ¶¶ 160-65. *Second*, once a sample is reduced to individual atoms, there is **nothing** to
 14 vaporize. *Id.* *Third*, even under Fluidigm’s theory, ionization occurs separately and subsequently to
 15 the atomizing in a glow discharge device. Mot. 12-13. A PHOSITA would have understood that to
 16 the extent it was possible to use a glow discharge device **with the sequential introduction of single**
 17 **cells** (as claimed), those techniques required a separate and heat-based vaporization step. Ex. 4
 18 (Hieftje) at 149:18-151:10 (testifying that one would have to combine a glow discharge with a flow
 19 cytometer device); Ex. 9 (Winograd CC Decl.), ¶¶ 176-85.

20 **c) A PHOSITA Would Understand “Vaporiz[ing/e]” To Define A
 21 Specific Process That Uses Heat**

22 Specifically as to the first “vaporize” step, a PHOSITA would have understood that, in the
 23 context of these claims and patents, the term requires the heat-based transition of a bulk sample
 24 from a solid or liquid to a gas. The specification provides four examples of what may be used to
 25 vaporize, atomize, and ionize the sample: “**graphite furnace, glow discharge** and **capacitively**
 26 **coupled plasma**,” and where “**Inductively Coupled Plasma Mass Spectrometry** (ICP-MS) is a

27 ¹¹ Even in the unclaimed embodiment of OES where “atomization may not be necessary,” the overall
 28 sequence is nevertheless maintained. Dkt. 162-2 at 3:11-15 (“Thus, for example, ‘vaporize, atomize
 and ionize’ should be understood to mean vaporize, atomize and ionize (for mass spectrometry) or
 excite (either or both atoms and ions) for OES.”); Ex. 9 (Winograd CC Decl.), ¶ 142.

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1 preferred means.” Dkt. 162-2 at 13:2–6; 13:12–13. Each of these includes or implicates the use of
 2 thermal heat to vaporize the sample. Ex. 9 (Winograd CC Decl.), ¶¶ 166–71; 176–85.

3 Unable to find support for its construction in the intrinsic or extrinsic evidence, Fluidigm
 4 states that Dr. Winograd “admitted, POSITA routinely describe the SIMS method used by MIBI as
 5 “vaporizing” elemental tags. Mot. 11. Not so. Fluidigm’s first two cites, 178:16–24 and 181:4–10,
 6 relate to “evaporation/atomization” and **not** vaporization. And the remaining cites relate to the use
 7 of “vaporization” on its own and not in the context of the claim term vaporization, atomization, and
 8 ionization. Ex. 5 (Winograd) at 334:2–16. As Dr. Winograd testified:

9 And so I’m – I’m maybe perhaps overly sensitive about referring -- you
 10 know, giving any kind of thermal connotation to the desorption process
 11 because ***our work has -- has shown time and time again that it's not a***
thermal process. It's not vaporization. It's sputtering. And when people
 12 try to put the word “vaporization” on sputtering, which you have correctly
 shown they do, and good people do, ***I disagree with it.***

13 Dkt. 161-5 at 191:14–24. Even more notable, Fluidigm cites to Dr. Winograd’s own article as
 14 evidence that PHOSITAs referred to SIMS as vaporizing but **omits** Dr. Winograd’s testimony in
 15 which he makes clear Fluidigm’s reading of his paper is incorrect:

16 Q. I guess I’m just – I’m trying to understand a way to read it other than if
 17 “this approach” refers to SIMS, then SIMS offers a complementary mass
 18 spectrometric method for vaporizing and ionizing nonvolatile and thermally
 unstable compounds. I’m having a hard time understanding, Dr. Winograd,
 how else to read this sentence?

19 A. It says “complementary,” sir. Not “the same.” ***It's totally different***
mechanism. I mean, I've got 500 papers that discuss the fact that the
mechanism is different. And if you parse that sentence the way I just did,
 20 it’s perfectly consistent. So I’m not sure why you’re attacking one parse of
 21 one sentence out of 500 publications, which is -- which is ambiguous or
 22 which could be interpreted to be ambiguous.

23 *Id.* at 158:19–159:16; *see also id.* at 157:25–158:18 (“I would parse it totally differently”).

24 Ultimately, whatever lay or non-specific meaning Fluidigm seeks to ascribe to “vaporize,”
 25 the law requires that this term be read in the context of the patent and the limitation in which it is
 26 found. The context provided here is two-fold. First, the specification provides four separate, heat-
 27 based examples (and no non-heat-based examples) for vaporization. Second, “vaporize” does not
 28 sit alone in the claim, but is recited along with steps to “atomize” and “ionize.” These three steps

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1 **together** exclude non-heat routes to ionize particles. Ex. 9 (Winograd CC Decl.), ¶ 166-75. As such,
2 the claim do not cover any route from a sample to ions as Fluidigm's construction implies.

3 **d) Fluidigm's Reliance on Glow Discharge Is Unpersuasive**

4 Perhaps recognizing that the language of its claims and the specification expose one of the
5 fundamental defects in its infringement case, Fluidigm's motion attempts to broaden the scope of
6 the claims by (1) (correctly) noting that that the specification lists a "glow discharge device" as a
7 means to vaporize, atomize, and ionize, but (2) (incorrectly) assuming that **all** glow discharge
8 devices operate without the use of heat, and then (3) (incorrectly) implying that the patents'
9 references to "glow discharge" must mean that "vaporize" does not require heat.

10 This argument flies in the face of its expert's own testimony. Dr. Hieftje testified that glow
11 discharge has **never** been used in this way for single cell analysis. Ex. 4 (Hieftje) at 149:18-150:23;
12 153:16-23. Instead, the only **way** a glow discharge device could be used to achieve the claimed
13 function would be if it were combined with a sample introduction device. *Id.* at 149:8-10. This is
14 consistent with the intrinsic record, which includes a patent publication cited by the PTO during
15 prosecution of a patent in the same family, U.S. Patent Pub. 2002/0003210. This reference describes
16 the difficulties in applying glow discharge devices to particle systems and overcomes this problem
17 by combining a heated chamber with a glow discharge device. Ex. 10 (U.S. 2002/0003210
18 (Marcus)) at [0035]. As another example, the Bogaerts reference on which Fluidigm and Dr. Kelly
19 rely, identifies multiple glow discharge devices that rely on with thermal processes such as laser
20 ablation and a "graphite furnace" to liberate particles from a sample. Ex. 9 (Winograd CC Decl.),
21 ¶ 183. In other words, the references to glow discharge devices are fully in line with the requirement
22 of vaporizing, atomizing and ionizing, just as IONpath proposes.

23 **2. Fluidigm Presents No Evidence that MIBIscope "Vaporizes, Atomizes,
24 and Ionizes" Under IONpath's Proposed Construction**

25 Fluidigm's brief does not argue that IONpath's MIBIscope infringes under IONpath's
26 proposed claim construction. Mot. 8-13 (failing to provide infringement analysis under IONpath's
27 claim construction). This is unsurprising as the scientific consensus on SIMS is that atomic species
28 are emitted directly from the point of primary ion impact. Ex. 6 (Winograd NI Rpt.), ¶ 158. In other

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1 words, that there is no vaporization, and that atomization and ionization occur at the same moment
 2 in time and not separately let alone in order. *Id.*, ¶¶ 156-62. If the Court agrees with IONpath's
 3 construction, or any subpart discussed above, it must deny Fluidigm's motion.

4 **3. Fluidigm Presents No Competent Evidence that MIBIscope “Vaporizes,
 5 Atomizes, and Ionizes” Under Fluidigm's Proposed Construction**

6 Fluidigm has also not borne its burden under its own proposed claim construction. Fluidigm
 7 fails to establish that IONpath's instrument practices the limitation of the claims—i.e., that it is the
 8 “elemental tags **from a single first[/second] cell**” ('386 patent) or “elemental tags **from a**
 9 **single[/second] first cell**” that must be vaporized, atomized and ionized. Even applying its own
 10 proposed construction, Fluidigm does not establish that there is no genuine dispute of material fact
 11 for those same reasons discussed above in Sections IV.A.3 and IV.B.3. Moreover, Fluidigm's
 12 citation to Stanford's U.S. Patent No. 9,312,111,¹² which is licensed by IONpath and marked on the
 13 MIBIscope, is also unavailing. The language cited is from the specification and **not the claims**. *See*
 14 *Frolow v. Wilson Sporting Goods Co.*, 710 F.3d 1303, 1310 (Fed. Cir. 2013) (“Placing a patent
 15 number on a product is an admission by the marking party that the marked product falls within the
 16 **scope of the patent claims**.”). As such, the patent is simply not probative of infringement. But even
 17 if it were, it would raise only a triable issue of fact. *Id.* (holding that evidence of marking is an
 18 extrajudicial admission that may be countered like any other piece of evidence).

19 **V. THERE IS NO BASIS FOR SUMMARY JUDGMENT OF NO INVALIDITY**

20 Throughout this case, Fluidigm has sought to stretch the asserted patents to capture multiple
 21 disparate technologies not claimed, described, or even known to the named inventors at the time of
 22 the claimed invention. After seeking to broaden the claims, Fluidigm cannot seriously question the
 23 robust invalidity challenges IONpath has advanced. Indeed, while Fluidigm argues that IONpath

24 ¹² Notably, the '111 patent uses the terms ionize or irradiation elsewhere in the patent to describe
 25 SIMS. Dkt. 162-5 at 1:42-46, 1:60-62, 3:7-11, 3:16-19, 7:1-3. And earlier patents in the same family
 26 use the phrase vaporize, atomize, and ionize only in connection with an inductively coupled plasma
 27 (“ICP”) device and not SIMS. Ex. 11 (U.S. Pat. Pub. 2012/0077714), ¶ 0048 (“In particular
 28 embodiments, after being separated from the particle, the cleaved mass tags are vaporized, atomized,
 and ionized by plasma (e.g. inductively coupled plasma) to produce ions that are subsequently
 analyzed by a mass spectrometer . . .”); Ex. 12 (U.S. Patent No. 8,679,858) at 13:52-55 (“In particular
 embodiments the mass dots are vaporized, atomized and ionized by plasma (e.g., inductively
 coupled plasma) to produce ions that are subsequently analyzed by a mass spectrometer”).

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has ‘thrown the kitchen sink’ at invalidity, IONpath’s invalidity case is the natural and direct consequence of Fluidigm’s effort to broaden the claims to cover laser ablation (which it disavowed during prosecution and which the named inventors admit they did not know how to use to practice as of the priority date), glow discharge (which the named inventors never knew how to use to practice the claimed invention and which to this day cannot work to analyze single cells), and SIMS (which the named inventors did not—and still do not know—how to use to practice the asserted claims). Not only are these technologies not described or enabled, but under Fluidigm’s view of its own patents’ scope, prior art in all of these fields is now directly relevant to the invalidity analysis.

A. Fluidigm Has Not Proven That There Are No Genuine Issues of Material Fact Related to Obviousness

Fluidigm’s motion for summary judgment of no obviousness is dead on arrival because Fluidigm does not actually engage with IONpath’s obviousness case. Rather than addressing the *combinations* of prior art which IONpath has set forth in its contentions and that IONpath’s expert has opined upon at length, Fluidigm addresses each reference *individually* to allege purported shortcomings that at best might oppose a § 102 anticipation argument. Mot. 21-23.

On the relevant question—obviousness—Fluidigm only superficially contends that there is no genuine dispute of material fact related to motivations to combine. In fact, Dr. Winograd opined at length as to how and why Fluidigm’s patents are invalid as obvious, including why a PHOSITA would have been motivated to combine the particular references he analyzed. *See* Ex. 13 (Winograd Inv. Rpt.), ¶¶ 187-201 (Baranov441 in view of Nomizu2002); *Id.*, ¶¶ 270-83 (Baranov441 in view of Colliver1997); *Id.*, ¶¶ 338-50 (Baranov441 in view of Hindie1992); *Id.*, ¶¶ 408-24 (Baranov441 in view of Kindness2003 and Torchilin2000); *Id.*, ¶¶ 485-99 (Colliver1997 in view of Torchilin2000); *Id.*, ¶¶ 545-52 (Colliver1997 in view of Lauffer835); *Id.*, ¶¶ 602-12 (Nomizu2002 in view of Torchilin2000); *Id.*, ¶¶ 662-67 (Kindness2003 in view of Torchilin2000); Ex. 14 (Winograd Supp. Inv. Rpt.), ¶¶ 51-55 (Baranov441 in view of Nomizu2002 and King1990). Fluidigm does not even cite, let alone confront, this evidence. That alone dooms its motion.

But Fluidigm's refusal to engage with IONpath's combinations is especially remarkable given the combinations' strengths. Taking just one example, Dr. Winograd identified the

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1 combination of Baranov441 (the laser ablation reference Fluidigm disavowed during prosecution
 2 but now seeks to recapture) with “Determination of Zinc in Individual Airborne Particles” by
 3 Nomizu (referred to as “Nomizu2002”). To start, Fluidigm’s expert Dr. Hieftje admits that
 4 Baranov441 **alone** satisfies all of the limitations of the claims:

5 [Q.] In the Baranov ’441 application, if you were to use the laser ablation that the
 6 Baranov ’441 with a very large cell that you were describing, an enormous cell, in that
 circumstance it would allow for analysis of the single cell; correct?

7 A. Yes.

8 [Q.] And Baranov ’441 disclosed metal tagging of -- of antibodies; correct?

9 A. Yes.

10 Ex. 4 (Hieftje) 325:10-20; *id.* at 320:9-14 (admitting the claims do not limit the size of the cell). But
 11 even if Baranov441 did not perform sequential single cell analysis as claimed, Dr. Winograd opines
 12 that a PHOSITA would be motivated to combine the teachings of Baranov441 with the single
 13 particle analysis taught in Nomizu2002. Ex. 13 (Winograd Inv. Rpt.), ¶¶ 188-202. In fact, Dr. Hieftje
 14 testified that based on his personal knowledge, the Nomizu lab was interested “in the determination
 15 of material in individual particles,” and further that “cells are to [Dr. Nomizu] basically just another
 16 kind of particle.” Ex. 4 (Hieftje) at 322:9-20. Moreover, Dr. Winograd opined that a PHOSITA
 17 would be motivated to combine the references because substituting Baranov441’s laser ablation
 18 technique with Nomizu2002’s “particle analyzer” would have been “a simple substitution and yield
 19 predictable results.” Ex. 13 (Winograd Inv. Rpt.), ¶ 192; *see also id.*, ¶¶ 187-201.¹³ The evidence
 20 supporting this combination, and the others on which Dr. Winograd opined, not only preclude
 21 judgment of no obviousness but also confirm that, if this case proceeds past showdown summary

22 ¹³ Fluidigm’s single sentence argument that secondary considerations of non-obviousness apply
 23 must be rejected. For secondary indicia of non-obviousness to have probative weight, the patentee
 24 must prove that there is a **nexus** between merits of the claimed invention and the secondary
 25 considerations. *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 306 n.42 (Fed.
 26 Cir. 1985). Fluidigm bears the initial production burden for secondary indicia and their nexus to the
 asserted patents, but has utterly failed to meet that burden. *Prometheus Labs., Inc. v. Roxane Labs., Inc.*, 805 F.3d 1092, 1101-02 (Fed. Cir. 2015). Indeed, Dr. Hieftje did not even conduct an analysis
 27 of nexus. Ex. 4 (Hieftje) at 219:23-220:17, 226:20-227:2; *see also id.* at 200:23-201:12 (admitting
 28 that he did not compare the asserted claims with any other mass cytometry patent to determine their
 relative contribution). Furthermore, IONpath moved during the deposition, and moves here again,
 to strike Fluidigm’s Ex. F (Hieftje Depo.) at 421:5-24 regarding the nexus between alleged industry
 praise and the asserted claims because the Fluidigm improperly elicited testimony from Dr. Hieftje
 on redirect that is far outside the scope of his expert report. *Compare* Ex. 4 (Hieftje) at 421:5-422:1
 with Ex. 15 (Hieftje Inv. Rpt.) ¶ 305.

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1 judgment, IONpath will have a compelling invalidity presentation at trial.

2 **B. Fluidigm Has Not Proven that There Are No Genuine Issues of Material**
Fact Related Enablement and Written Description

3

4 Although this case presents unusually serious Section 112 defects, Fluidigm attempts to
5 dismiss IONpath's written description and enablement arguments in just a few lines. And those lines
6 are as superficial as the disclosure on which Fluidigm relies. To that end, Fluidigm merges its
7 argument that there is both written description and enablement analysis and namely makes three
8 arguments: (1) the patent's disclosure of glow discharge which employs the same sputtering
9 technique as SIMS provides both written description and enablement for glow discharge and SIMS;
10 (2) because a "POSITA would know how to make and employ SIMS-based systems" the patent is
11 enabled; (3) because Baranov441 is incorporated by reference, the patent has both written
12 description and enablement support for laser ablation. Mot. 24-25. Each is meritless.

13 **First**, Fluidigm's argument that glow discharge discloses a "sputtering technique" and thus
14 provides written description and enablement support for both glow discharge and SIMS is
15 inconsistent with both Fluidigm's expert and named inventor's testimony. In fact, Dr. Hieftje admits
16 he is not aware of any instance in which someone has used glow discharge to analyze single cells
17 sequentially. *See* Ex. 4 (Hieftje) at 149:18-150:5 ("I cannot come up with an example that either has
18 been published or that I've seen in someone's laboratory in which they have done that."). And Dr.
19 Tanner admitted that at no time did any of the inventors attempt to conduct single-cell analysis using
20 a glow discharge device. Ex. 1 (Tanner) at 127:23-128:4 (admitting that he was needed to implement
21 the claimed techniques with a glow discharge device). Moreover, Dr. Winograd testified that while
22 it may be possible to analyze a single cell, it was not possible to sputter cells sequentially as claimed
23 because "there is no lateral resolution to speak of." Dkt. 161-5 at 320:7-321:12; *see also* Ex. 14
24 (Winograd Supp. Inv. Rpt.), ¶¶ 126-131, 178, 187-91 (glow discharge is not described or enabled).

25 Likewise, if the passing mentions of "glow discharge" in the specification could not enable
26 the claims for glow discharge, they certainly cannot have enabled or disclosed to a person of skill
27 that the named inventors were in possession of a *different* embodiment (SIMS) just because
28 Fluidigm (wrongly) contends it is similar. And notably the named inventors had never used SIMS.

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1 Ex. 2 (Fluidigm RFA Resp.) at Nos. 268, 269, 270. All of which is consistent with Dr. Winograd's
 2 detailed analysis and conclusion that the specification provides no guidance as to the
 3 implementation of a system that would rely SIMS. *See* Ex. 13 (Winograd Inv. Rpt.), ¶¶ 767, 771,
 4 772-80 (experimentation far from routine).

5 **Second**, Dr. Winograd's does not provide mere "conclusory allegations" on excessive
 6 experimentation, but provides fourteen detailed pages of analysis. *See e.g. id.*, ¶¶ 765-767, 771, 772-
 7 80 (experimentation far from routine), 791-98 (underlying technology not mature). Fluidigm's
 8 citation to *Cephalon, Inc. v. Watson Pharm., Inc.*, 707 F.3d 1331, 1339 (Fed. Cir. 2013), makes this
 9 very point. There, the expert provided only a single sentence of analysis, **not** fourteen pages.

10 **Third**, Fluidigm continues to talk out of both sides of its mouth regarding the laser ablation
 11 disclosures of Baranov441. Despite Fluidigm's reliance on Baranov441 for § 112 support, Fluidigm
 12 has simultaneously argued that Baranov441's laser ablation disclosure does not render the patents-
 13 in-suit obvious when combined with patents that teach analysis of single cells such as Nomizu441
 14 (using ICP). Mot. 21-24. Fluidigm cannot have it both ways. In any case, the named inventors admit
 15 that as of the priority date they did not know of anyone that was doing laser ablation at the required
 16 resolution and that they would spend from at least 2007 to 2014 to develop a laser ablation system
 17 that had sufficient resolution for single cell detection and analysis. Ex. 1 (Tanner) at 154:3-155:25;
 18 Ex. 14 (Winograd Supp. Inv. Rpt.) ¶¶ 114-25 (no written description support for laser ablation);
 19 ¶¶ 141-58 (excessive experimentation to enable laser ablation).

20 Most tellingly, and remarkably, Fluidigm concludes its motion by stating that "**[r]egardless**
 21 **of what suitable device(s)** is used for vaporization, atomization and ionization, the patents enable
 22 detection of the elemental composition of transient signals from single cells." Mot. 25. The very
 23 idea that their patent could be so broad as to cover **any** "suitable device," and not only those that
 24 were properly disclosed as required under § 112, violates the "carefully crafted bargain" of patent
 25 law. *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 63 (1998). "The purpose of this provision is to ensure
 26 that the scope of the right to exclude, as set forth in the claims, **does not overreach the scope of the**
 27 **inventor's contribution to the field** of art as described in the patent specification." *Reiffin v.*
 28 *Microsoft Corp.*, 214 F.3d 1342, 1345 (Fed. Cir. 2000).

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1 Dated: December 10, 2020

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CERTIFICATE OF SERVICE

I hereby certify that on December 10, 2020, a true and correct copy of the above and foregoing Document has been served by electronic mail upon all counsel of record.

Dated: December 10, 2020

By: /s/ Taylor Gooch

Joseph Taylor Gooch